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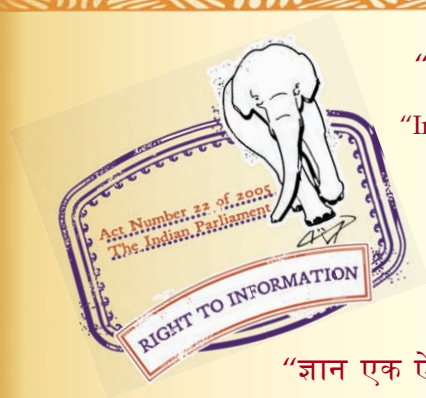
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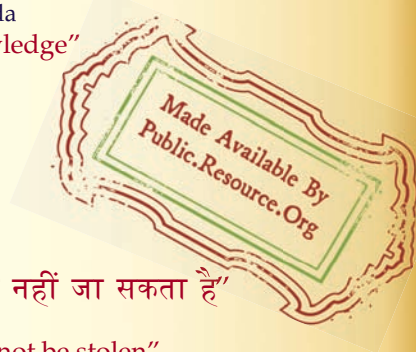
IS 5515 (1983): Specification compacting factor apparatus  
[CED 2: Cement and Concrete]



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Bhartrhari—Nitiśatakam

“Knowledge is such a treasure which cannot be stolen”



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**IS : 5515 - 1983**  
( Reaffirmed 1990 )

*Indian Standard*

**SPECIFICATION FOR  
COMPACTING FACTOR APPARATUS**

*( First Revision )*

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**BUREAU OF INDIAN STANDARDS**  
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG  
NEW DELHI 110002

# *Indian Standard*

## SPECIFICATION FOR COMPACTING FACTOR APPARATUS

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*Indian Standard*  
**SPECIFICATION FOR  
COMPACTING FACTOR APPARATUS**  
*( First Revision )*

**0. FOREWORD**

**0.1** This Indian Standard ( First Revision ) was adopted by the Indian Standards Institution on 28 February 1983, after the draft finalized by the Cement and Concrete Sectional Committee had been approved by the Civil Engineering Division Council.

**0.2** The Indian Standards Institution has published a series of standards on methods of testing cement and concrete. Having recognized that reliable and reproducible test results could be obtained only with the use of standard testing equipment capable of giving desired level of accuracy, the Cement and Concrete Sectional Committee had taken up formulation of Indian Standards on these instruments. These standards are expected to promote development and manufacture of standard testing equipment in the country.

**0.3** This standard was first published in 1969 with the title 'Specification for Compaction Factor Apparatus'. This revision has been formulated to incorporate certain modifications found necessary based on the experience gained in the manufacture and use of this equipment. In this revision, the title of the standard has been modified, since the relevant characteristic of concrete is more appropriately known as compacting factor. Further, the essential requirements for trowels to be supplied as accessories along with the apparatus have been spelt out fully.

**0.4** The method of using compacting factor apparatus for measuring workability of concrete is covered in IS : 1199-1959\*.

**0.5** In the formulation of this standard due weightage has been given to international co-ordination among the standards and practices prevailing in different countries in addition to relating it to the practices in the field in this country.

**0.6** For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with

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\*Methods of sampling and analysis of concrete.

IS : 2-1960\*. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

## 1. SCOPE

**1.1** This standard covers requirements of the apparatus and accessories used for determining the compacting factor of fresh concrete with nominal maximum aggregate size not exceeding 40 mm, as a measure of its workability.

## 2. DIMENSIONS

**2.1** Essential dimensions of the various component parts of the compacting factor apparatus shall be as shown in Table 1. Where tolerances are not specifically mentioned, the dimensions indicated are nominal.

NOTE — The allowable deviations for nominal dimensions shall be as laid down for coarse class of deviation in IS : 2102-1969†.

**TABLE 1 ESSENTIAL DIMENSIONS AND TOLERANCES OF THE COMPACTING FACTOR APPARATUS**

SL No. (1)	PARTICULAR (2)	DIMENSION (3) mm	TOLERANCE (4) mm
i)	<i>Upper hopper:</i>		
	a) Top internal diameter	250	2.5
	b) Bottom internal diameter	125	2.5
	c) Internal height	275	1
ii)	<i>Lower hopper:</i>		
	a) Top internal diameter	225	2.5
	b) Bottom internal diameter	125	2.5
	c) Internal height	225	1
iii)	<i>*Receiver:</i>		
	a) Internal diameter	150	1
	b) Internal height	285	1
	c) Radius of bottom fillet	20	—
iv)	Distance between bottom of upper hopper and top of lower hopper	200	1
v)	Distance between bottom of lower hopper and top of receiver	200	1

\*The volume of the receiver corresponding to the specified dimensions will be 0.005 m<sup>3</sup>.

\*Rules for rounding off numerical values (*revised*).

†Allowable deviations for dimensions without specified tolerances (*first revision*).



### 3. CONSTRUCTION

**3.1 General** — The apparatus shall consist of two conical hoppers mounted above a cylindrical receiver, as shown in Fig. 1.

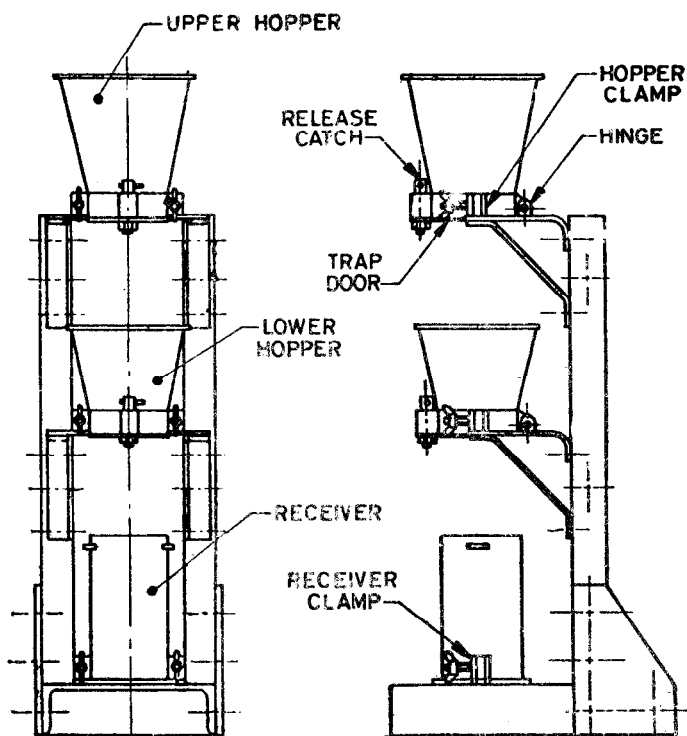


FIG. 1 COMPACTING FACTOR APPARATUS

**3.2 Hoppers** — The hoppers shall be of rigid construction, true to shape and finished smooth inside. They shall be made of cast brass conforming to IS : 292-1961\* or cast-iron of grade 20 conforming to IS : 210-1978†. Brass sheet at least 3 mm thick may also be used provided the joints are finished flush and the upper edge suitably stiffened with a collar. The lower ends of the hoppers shall be tightly closed with hinged trap-doors having quick release catches. On releasing, the doors shall swing free of the falling concrete. Cast brass or cast iron or sheet brass 3 mm thick is suitable for the doors.

\*Specification for brass ingots and castings ( revised ).

†Specification for grey iron castings ( third revision ).

**3.3 Receiver** — The cylindrical receiver shall be of rigid construction, true to shape and finished smooth inside. It shall be made of cast brass or cast iron. The top edge shall be accurately machined normal to the cylinder axis. Suitable lugs shall be provided for facility in lifting the receiver.

**3.4 Frame** — The frame shall be of rigid construction. Welded or riveted rolled structural sections would be suitable. It shall hold the hoppers and receiver firmly in position along their common vertical axis in the relative positions indicated in Fig. 1. The receiver and hoppers shall be easily detachable.

**3.5 Accessories** — The apparatus shall also include two ordinary trowels having a steel blade of 200 mm in length with straight edge, ( *see* IS : 1630-1960\* ) a hand scoop about 150 mm long, a 16 mm diameter and 600 mm long steel tamping bar with a rounded working end and scales ( or a balance ) to weigh up to 25 kg to the nearest 10 g.

## **4. MARKING**

**4.1** The following information shall be clearly and indelibly marked on each component of the apparatus, as far as practicable, in such a way that it does not interfere with the performance of the apparatus:

- a) Manufacturer's name or registered trade-mark or both, and
- b) Date of manufacture.

**4.1.1** The apparatus may also be marked with the ISI Certification Mark.

**NOTE** — The use of the ISI Certification Mark is governed by the provisions of the Indian Standards Institution ( Certification Marks ) Act and the Rules and Regulations made thereunder. The ISI Mark on products covered by an Indian Standard conveys the assurance that they have been produced to comply with the requirements of that standard under a well-defined system of inspection, testing and quality control which is devised and supervised by ISI and operated by the producer. ISI marked products are also continuously checked by ISI for conformity to that standard as a further safeguard. Details of conditions under which a licence for the use of the ISI Certification Mark may be granted to manufacturers or processors, may be obtained from the Indian Standards Institution.

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\*Specification for masson's tools for plaster work and pointing work.

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